



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/019,996	10/19/2001	Matthias Beller	Mo-6712/LeA 34,285	9877

34947 7590 07/14/2003

BAYER CHEMICALS CORPORATION  
100 BAYER ROAD  
PITTSBURGH, PA 15205

EXAMINER

REYES, HECTOR M

ART UNIT PAPER NUMBER

1625

DATE MAILED: 07/14/2003

6

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Offic Action Summary</b>	Application N .	Applicant(s)
	10/019,996	BELLER ET AL.
Examin r	Art Unit	
Hector M Reyes	1625	

-- The MAILING DATE of this c mmunication appears on the cover sheet with the corresp ndence address --

**Period f r Reply**

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is FINAL.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 13 to 28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 13 to 28 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
  - a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____.
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.	6) <input type="checkbox"/> Other: _____

**DETAILED ACTION**

**Paper Entry**

Examiner acknowledges Applicant's:

- Priority Document and PCT DO/EO 903 form, filed on February 25, 2002 as Papers no. 2 and 3
- Preliminary Amendment filed on October 19, 2001 as Paper no. 4 and
- Information Disclosure Statement filed on April 19, 2002 as Paper no. 5.

**Status of the Claims**

Claims 1 through 12 had been canceled. Currently claims 13 through 28 are under Examination.

**Specification Objection**

On page 14, line 16, it is indicated that cyclohexane is used as the olefin to be subjected to dihydroxylation. The said sentence is objected because, even though an olefin is required in the claimed process, there is no olefin present in the said example.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 13 to 28 are rejected under 35 U.S.C. 112, first paragraph, because the specification:

- While being enabling for the use of  $K_2OsO_4$  as a catalyst does not reasonably provide enablement for the use of other catalysts.

- While shows some olefins being subjected to the claimed process does not reasonably provide enablement for the used of other olefins having multiple moieties as the ones described in the claims

The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims. See MPEP 2164 and In re Wands, 8USPDQ2d 1400.

Undue experimentation would be needed to make and use the invention base upon the following factors:

#### The Breadth of the Claims

Applicants claim a dihydroxylation of olefin process using catalysts wherein the said catalysts is:

- An osmium compound
- A ruthenium compound
- A manganese compound or
- Mixture thereof

And wherein the required olefin embraced olefins having multiple functional groups as listed in claim13, from line 13 to line 28 of the said claim.

Therefore regarding the catalyst, the broader interpretation is that any compound or mixture of compounds containing the said metals would satisfy the claims limitation. On the other hand, regarding the olefin, thousands of possible olefin are embraced as starting materials within the limitations of the clamed process. However Applicant shows enablement only for the use of  $K_2OsO_4$  as a catalyst in a small number of olefins.

The Nature of the Invention

The invention requires a catalyst and is specific in terms of the catalyst used and the reactions conditions required as molecular oxygen as oxidant agent, temperature, pressure and olefin to be dihydroxylated and particular organic moieties in the said olefin.

The Prior Art and The Level of Predictability

The prior art of record consider catalyst as specific and therefore unpredictable. It is held that the catalyst behavior cannot be predicted because of the chemical nature of the process itself. Therefore, similar catalysts are not expected to behave similarly even under the same reaction conditions nor similar processes are expected to be catalyzed by similar catalysts. Undue experimentation would be required to make and use different catalysts even to catalyze a similar process. See **Ex parte Sixto**, 9 USPDQ2d 2081 (1988).

The Existence of Working Examples

The specification shows examples wherein  $K_2OsO_4$  is used as a catalyst. That only represent one compound containing osmium but there is no examples wherein there are other osmium compounds or compounds containing other metals such as ruthenium or manganese. The used of osmium tetra oxide in oxidation process of olefin is highly known in the art, see for example US patent 3317592.

Experimentation Required to Carry out the invention as Claimed

In order to make and use the invention as being claimed undue experimentation directed to prepared multiple catalysts would be needed. Moreover, undue

experimentation would also be required in order to find out the specific reaction conditions wherein the said catalysts may properly work and the possible functional groups that may be present in the required olefin.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 13 through 16 and 23 through 27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- In claim 13, the phrase *osmium, ruthenium or manganese compound* is indefinite because the required compounds use as catalysts are not identify, see *Ex parte Sixto, 9 USPDQ 2d 2081 (1988)*.
- In claims 13, 23, 24, 25, 26 and 27 the simultaneous use of the inclusive and exclusive language in the phrase **and/or** is indefinite because it is not clear if the intended limitations are required or are merely non-required alternatives. Proper clear identification of the required method-limitations and conditions are needed in order to clarify the said claims.
- In claim 13, the phrase " **cyclic aliphatic organic group having from 1 to 18 carbon atoms**" is indefinite. It is not clear how can a cyclic moiety have only 1 or 2 carbon atom(s).

- Claim 16, the phrase "wherein the oxidant is oxygen or a gas mixture" is indefinite because there is insufficient antecedent basis for this limitation in claim 13, since "an oxidant" is not a limitation of claim 13, since the claim clearly indicate the use of molecular oxygen. Claim 14 and 15 are indefinite because the terms alkyl and aryl are not defined. Proper definition of the said term is essential in order to identify the limitations of the claimed invention.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 13 through 18 and 24 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by MacLean et al US patent 3317592 (1967).

MacLean discloses an oxidation process comprising the oxidation of olefins to glycols by osmium tetra oxide in alkaline solutions having pH from 7.5 to 12 and wherein the oxidant agent is molecular oxygen (see col. 2, lines 15 to 32). For examples of olefin subjected in the patented process see examples 1 through IV.

**CONCLUSION**

Any inquiry concerning this communication should be directed to Hector M. Reyes whose telephone number is (703) 605-1153. The examiner can normally be reached on Monday to Friday from 8 am to 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner 's supervisor, Allan Rotman, which telephone number, is (703) 308-4698. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-4556 or for regular communication and (703) 308-4242 for After Final communications.

Any inquiry of a general nature or relating to the status of the application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1235.

Héctor M. Reyes PhD, JD

July 10, 2003

*Alan L. Rotman*

ALAN L. ROTMAN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1600